

1. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{72 - 66i}{-1 + 5i}$$

- A. $a \in [-73, -71.5]$ and $b \in [-14.5, -12.5]$
 - B. $a \in [-16.5, -15]$ and $b \in [-295, -293.5]$
 - C. $a \in [9, 11]$ and $b \in [16, 17.5]$
 - D. $a \in [-16.5, -15]$ and $b \in [-11.5, -10.5]$
 - E. $a \in [-402.5, -401]$ and $b \in [-11.5, -10.5]$
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2. Simplify the expression below and choose the interval the simplification is contained within.

$$17 - 14^2 + 5 \div 4 * 15 \div 13$$

- A. $[-177.68, -176.84]$
 - B. $[-179.24, -177.84]$
 - C. $[213.8, 215.01]$
 - D. $[212.66, 214.13]$
 - E. None of the above
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3. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{1980}{12}}$$

- A. Irrational
- B. Whole
- C. Integer
- D. Not a Real number

E. Rational

4. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{-450}{10}}i + \sqrt{208}i$$

- A. Pure Imaginary
 - B. Nonreal Complex
 - C. Irrational
 - D. Rational
 - E. Not a Complex Number
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5. Simplify the expression below and choose the interval the simplification is contained within.

$$9 - 19 \div 15 * 4 - (6 * 14)$$

- A. $[-34.93, -23.93]$
 - B. $[87.68, 98.68]$
 - C. $[-80.07, -76.07]$
 - D. $[-76.32, -71.32]$
 - E. None of the above
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6. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{9 - 55i}{3 + 6i}$$

- A. $a \in [-8, -6.5]$ and $b \in [-6, -4]$
- B. $a \in [-303.5, -302]$ and $b \in [-6, -4]$

- C. $a \in [-8, -6.5]$ and $b \in [-220, -218.5]$
D. $a \in [7, 8.5]$ and $b \in [-3, -1.5]$
E. $a \in [2, 4.5]$ and $b \in [-11.5, -8]$
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7. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{180625}{625}}$$

- A. Whole
B. Not a Real number
C. Integer
D. Irrational
E. Rational
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8. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(7 - 4i)(10 + 9i)$$

- A. $a \in [30, 35]$ and $b \in [103, 105]$
B. $a \in [103, 112]$ and $b \in [-25, -19]$
C. $a \in [30, 35]$ and $b \in [-107, -101]$
D. $a \in [103, 112]$ and $b \in [19, 24]$
E. $a \in [68, 76]$ and $b \in [-36, -32]$
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9. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{484}{289}} + 25i^2$$

- A. Irrational

- B. Nonreal Complex
 - C. Not a Complex Number
 - D. Pure Imaginary
 - E. Rational
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10. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-5 - 3i)(-4 - 8i)$$

- A. $a \in [38, 49]$ and $b \in [-33, -25]$
 - B. $a \in [38, 49]$ and $b \in [27, 29]$
 - C. $a \in [-4, 3]$ and $b \in [52, 54]$
 - D. $a \in [-4, 3]$ and $b \in [-53, -50]$
 - E. $a \in [19, 28]$ and $b \in [23, 26]$
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11. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-72 + 77i}{5 + 3i}$$

- A. $a \in [-18, -16.5]$ and $b \in [3.5, 5.5]$
 - B. $a \in [-15.5, -13]$ and $b \in [25, 26.5]$
 - C. $a \in [-6, -2.5]$ and $b \in [600.5, 602.5]$
 - D. $a \in [-6, -2.5]$ and $b \in [16, 19]$
 - E. $a \in [-130, -128]$ and $b \in [16, 19]$
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12. Simplify the expression below and choose the interval the simplification is contained within.

$$2 - 14 \div 3 * 11 - (20 * 17)$$

- A. $[-391.33, -387.33]$
 - B. $[337.58, 343.58]$
 - C. $[-341.42, -336.42]$
 - D. $[-1181.67, -1176.67]$
 - E. None of the above
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13. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{441}{7}}$$

- A. Integer
 - B. Irrational
 - C. Not a Real number
 - D. Rational
 - E. Whole
-

14. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{858}{6}} + 2i^2$$

- A. Pure Imaginary
 - B. Not a Complex Number
 - C. Rational
 - D. Irrational
 - E. Nonreal Complex
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15. Simplify the expression below and choose the interval the simplification is contained within.

$$3 - 17^2 + 15 \div 10 * 13 \div 16$$

- A. $[-286.17, -285]$
 - B. $[291.99, 292.52]$
 - C. $[292.43, 293.37]$
 - D. $[-285.3, -284.01]$
 - E. None of the above
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16. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{18 - 44i}{8 + 5i}$$

- A. $a \in [-76.5, -75.5]$ and $b \in [-6.5, -4]$
 - B. $a \in [1, 3.5]$ and $b \in [-9.5, -8.5]$
 - C. $a \in [-1.5, -0.5]$ and $b \in [-6.5, -4]$
 - D. $a \in [3.5, 6]$ and $b \in [-3.5, -2.5]$
 - E. $a \in [-1.5, -0.5]$ and $b \in [-443, -440]$
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17. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{11664}{144}}$$

- A. Integer
- B. Rational
- C. Irrational
- D. Not a Real number

E. Whole

18. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-9 - 8i)(2 + 7i)$$

- A. $a \in [38, 39]$ and $b \in [-79, -78]$
 - B. $a \in [-75, -69]$ and $b \in [-51, -46]$
 - C. $a \in [38, 39]$ and $b \in [74, 83]$
 - D. $a \in [-75, -69]$ and $b \in [43, 53]$
 - E. $a \in [-18, -15]$ and $b \in [-57, -52]$
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19. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{\sqrt{182}}{18} + \sqrt{-7}i$$

- A. Not a Complex Number
 - B. Rational
 - C. Nonreal Complex
 - D. Irrational
 - E. Pure Imaginary
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20. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(6 + 4i)(8 + 9i)$$

- A. $a \in [82, 91]$ and $b \in [-22, -19]$
- B. $a \in [11, 18]$ and $b \in [83, 90]$
- C. $a \in [11, 18]$ and $b \in [-89, -85]$

D. $a \in [82, 91]$ and $b \in [13, 24]$

E. $a \in [41, 51]$ and $b \in [33, 37]$

21. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-72 - 77i}{-2 - 5i}$$

A. $a \in [17.5, 19]$ and $b \in [-207.5, -205]$

B. $a \in [-10, -7.5]$ and $b \in [17, 19]$

C. $a \in [528, 530]$ and $b \in [-8.5, -5]$

D. $a \in [17.5, 19]$ and $b \in [-8.5, -5]$

E. $a \in [35.5, 36.5]$ and $b \in [15, 16]$

22. Simplify the expression below and choose the interval the simplification is contained within.

$$3 - 2^2 + 17 \div 4 * 14 \div 20$$

A. $[1.2, 4.2]$

B. $[-4.9, -0.1]$

C. $[4.6, 9.2]$

D. $[9.5, 10.2]$

E. None of the above

23. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{2156}{14}}$$

A. Integer

- B. Not a Real number
- C. Irrational
- D. Rational
- E. Whole

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24. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{1872}{8}} + 4i^2$$

- A. Not a Complex Number
- B. Pure Imaginary
- C. Rational
- D. Irrational
- E. Nonreal Complex

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25. Simplify the expression below and choose the interval the simplification is contained within.

$$15 - 18^2 + 20 \div 2 * 12 \div 13$$

- A. $[346.23, 354.23]$
- B. $[-300.77, -290.77]$
- C. $[338.06, 344.06]$
- D. $[-311.94, -306.94]$
- E. None of the above

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26. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-54 + 44i}{-7 - 5i}$$

- A. $a \in [2.1, 2.8]$ and $b \in [-579, -577.5]$
 - B. $a \in [157.85, 159]$ and $b \in [-8.5, -7.5]$
 - C. $a \in [7.75, 8.45]$ and $b \in [-1.5, 0]$
 - D. $a \in [7.15, 8.05]$ and $b \in [-9.5, -8]$
 - E. $a \in [2.1, 2.8]$ and $b \in [-8.5, -7.5]$
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27. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{441}{100}}$$

- A. Irrational
 - B. Rational
 - C. Not a Real number
 - D. Integer
 - E. Whole
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28. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(8 + 5i)(4 + 9i)$$

- A. $a \in [74, 82]$ and $b \in [49, 56]$
 - B. $a \in [31, 36]$ and $b \in [43, 51]$
 - C. $a \in [-18, -9]$ and $b \in [-93, -88]$
 - D. $a \in [-18, -9]$ and $b \in [88, 98]$
 - E. $a \in [74, 82]$ and $b \in [-60, -48]$
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29. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{1078}{0}} + \sqrt{90}i$$

- A. Pure Imaginary
 - B. Irrational
 - C. Nonreal Complex
 - D. Not a Complex Number
 - E. Rational
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30. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(9 - 3i)(-10 - 4i)$$

- A. $a \in [-104, -96]$ and $b \in [1, 9]$
 - B. $a \in [-93, -87]$ and $b \in [9, 15]$
 - C. $a \in [-81, -70]$ and $b \in [-69, -58]$
 - D. $a \in [-104, -96]$ and $b \in [-11, 1]$
 - E. $a \in [-81, -70]$ and $b \in [66, 70]$
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